

What is claimed is:

1. A power generating apparatus comprising:
  - a power generator for generating alternating-current power;
  - 5 a driving source for driving said power generator;
  - an inverter device for converting the alternating-current power into commercial alternating-current power;
  - an interconnection switch for connecting an output of said inverter device with a commercial alternating-current power supply system;
  - 10 a first voltage detector for detecting a direct-current power supply voltage of said inverter device;
  - a second voltage detector for detecting a full-wave rectification voltage of the commercial alternating-current power supply system; and
  - an interconnection control part for closing said interconnection switch
  - 15 when the direct-current power supply voltage of said inverter device becomes equal to or exceeds the full-wave rectification voltage of the commercial alternating-current power supply system.
2. The power generating apparatus as recited in claim 1, further comprising
  - 20 a boost control part for boosting the direct-current power supply voltage of said inverter device so as to exceed the full-wave rectification voltage of the commercial alternating-current power supply system.
3. The power generating apparatus as recited in claim 1, wherein said
  - 25 driving source comprises a gas turbine engine.
4. The power generating apparatus as recited in claim 1, wherein said power generator comprises a permanent-magnet-type generator having a permanent magnet mounted on a circumferential surface of a rotor.
- 30 5. A method of operating a power generating apparatus, said method comprising:
  - driving a power generator to generate alternating-current power;

converting the alternating-current power into commercial  
alternating-current power by an inverter device;

detecting a direct-current power supply voltage of the inverter device;

detecting a full-wave rectification voltage of a commercial  
5 alternating-current power supply system; and

connecting an output of the inverter device with the commercial  
alternating-current power supply system based on the direct-current power supply  
voltage of the inverter device and the full-wave rectification voltage of the  
commercial alternating-current power supply system.

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6. A power generating apparatus comprising:

a power generator for generating alternating-current power;

a driving source for driving said power generator;

an inverter device for converting the alternating-current power into  
15 commercial alternating-current power;

an interconnection switch for connecting an output of said inverter device  
with a commercial alternating-current power supply system;

a filter circuit connected between said inverter device and the commercial  
alternating-current power supply system, said filter circuit comprising a reactor and  
20 a capacitor;

a first voltage detector for detecting an output voltage of said inverter  
device;

an active filter connected to said first voltage detector, said active filter  
having simulated properties of said filter circuit;

25 a second voltage detector for detecting a voltage of the commercial  
alternating-current power supply system; and

an interconnection control part for closing said interconnection switch  
when an output of said active filter accords with an output of said second voltage  
detector.

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7. The power generating apparatus as recited in claim 6, wherein said  
driving source comprises a gas turbine engine.

8. The power generating apparatus as recited in claim 6, wherein said power generator comprises a permanent-magnet-type generator having a permanent magnet mounted on a circumferential surface of a rotor.

5           9. A method of operating a power generating apparatus, said method comprising:

          driving a power generator to generate alternating-current power;

          converting the alternating-current power into commercial alternating-current power by an inverter device;

10           detecting an output voltage of the inverter device;

          detecting a voltage of the commercial alternating-current power supply system;

          inputting the output voltage of the inverter device into an active filter having simulated properties of a filter circuit to generate a simulated output voltage of the filter circuit, said filter circuit being connected between the inverter device and the commercial alternating-current power supply system and comprising a reactor and a capacitor; and

          connecting an output of the inverter device with the commercial alternating-current power supply system when the simulated output voltage of the filter circuit accords with the voltage of the commercial alternating-current power supply system.

          10. A power generating apparatus comprising:

          a power generator for generating alternating-current power;

25           a driving source for driving said power generator;

          an inverter device for converting the alternating-current power into commercial alternating-current power;

          an interconnection switch for connecting an output of said inverter device with a commercial alternating-current power supply system;

30           a filter circuit connected to said interconnection switch and disposed between said interconnection switch and the commercial alternating-current power supply system, said filter circuit comprising a reactor and a capacitor; and

          an interconnection control part for closing said interconnection switch to

connect the output of said inverter device with the commercial alternating-current power supply system.